

REVIEW OF THE AUSTRALIAN GENERA *EURYPHANTIA* KIRKALDY AND *THANATOCHLAMYS* KIRKALDY (HOMOPTERA, FULGOROIDEA, FLATIDAE)

By M. J. Fletcher

Biological and Chemical Research Institute, P.M.B. 10, Rydalmere, N.S.W., 2116.

Abstract

Thanatochlamys Kirkaldy is synonymized with *Euryphantia* Kirkaldy on the basis of the extreme similarity between their two type species. The species are separable only by comparison of male genitalia and, apparently, by their allopatric distributions. *E. cinerascens* Kirk. is widespread in Queensland and Northern Territory but does not extend into the eastern coast of Cape York Peninsula to which area *E. tristis* (Kirk.) is restricted. The male genitalia of both species are described and figured.

Introduction

Euryphantia Kirkaldy (1906) and *Thanatochlamys* Kirkaldy (1907) were each erected to contain a single species. No further species have been added to either genus.

The genitalia of 39 males of what was thought to be *Euryphantia cinerascens* Kirkaldy, were examined and found to exist in two forms. The distributions of these two forms revealed that one form was restricted to the Cairns district and eastern coast of Cape York Peninsula, Queensland, whereas the other form was found in the Brisbane area, at Bundaberg, Palm Island near Townsville, and Carnarvon Gorge, all in Queensland, and near Mudginbarry HS in the Northern Territory. This second form has not been recorded north of 18°S latitude in Queensland, although two specimens were collected at 12°31'S latitude in the Northern Territory.

Despite extensive investigation no consistent morphological difference, except in the male genitalia, has been found between the two groups. Consequently the females can be identified only by reference to their collection locality.

The male holotype of *Thanatochlamys tristis* Kirkaldy from Cairns was examined and proved to be identical to the form from North Queensland. The holotype of *E. cinerascens* is a female from Bundaberg, Queensland. This locality places it well outside the range of the species in north Queensland.

Hence the northern Queensland form is *T. tristis* and the more widespread form *E. cinerascens*. Since the two species are separated reliably only on male genitalia they are certainly congeneric. The two genera are here synonymised, *Euryphantia* Kirkaldy having priority.

Euryphantia (Kirkaldy) 1906

Euryphantia Kirkaldy (1906). *Bull. Haw. Sug. Pl. Ass. Div. Ent.* 1(9): 456.

Thanatochlamys Kirkaldy (1907). *Bull. Haw. Sug. Pl. Ass. Div. Ent.* 3: 101. New synonym.

Type species by monotypy, *E. cinerascens* Kirkaldy.

The genus was adequately characterised in the original description, the characters of principal importance being the three sharp frontal carinae meeting at the sharp apex of the frons, the flat vertex with angulate front margin and

median longitudinal carina which continues through the pronotum and mesonotum. The presence of only one forked longitudinal vein in the basal half of the tegmen, this being the cubital, was pointed out by Kirkaldy, but several specimens have other longitudinal veins forking at or slightly distal to the midlength of the tegmen. The brown colouration would also appear to be of generic significance since all species of related genera such as *Euphanta* Melichar, are basically green.

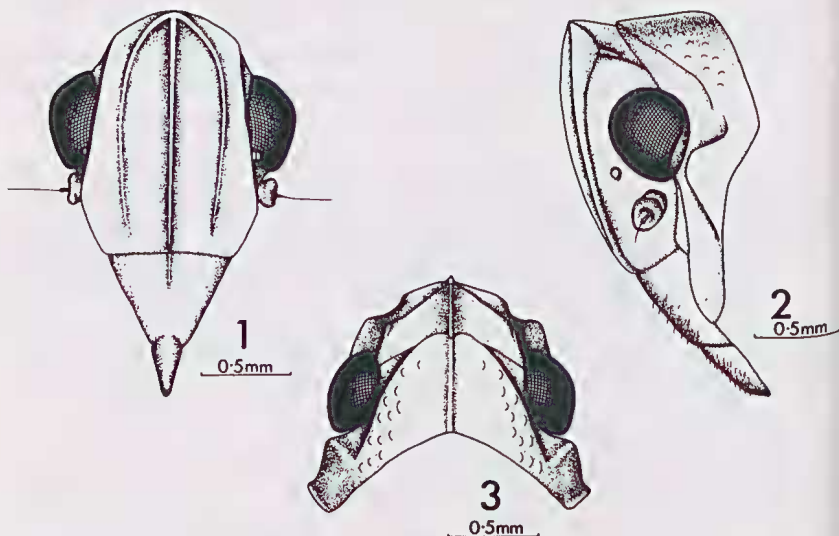
Euryphantia cinerascens Kirkaldy 1906

Type: Holotype ♀ (seen), Bundaberg, Queensland, June 1904. Type location: Bernice P. Bishop Museum, Honolulu.

Known distribution: NORTHERN TERRITORY: 9 km N by E of Mudginbarry HS; Groote Eylandt. QUEENSLAND: Albert River; Carnarvon Gorge; Mt. Edwards; Brisbane metropolitan area; Gatton; Bundamba; Dalby; Palm Island; Bundaberg.

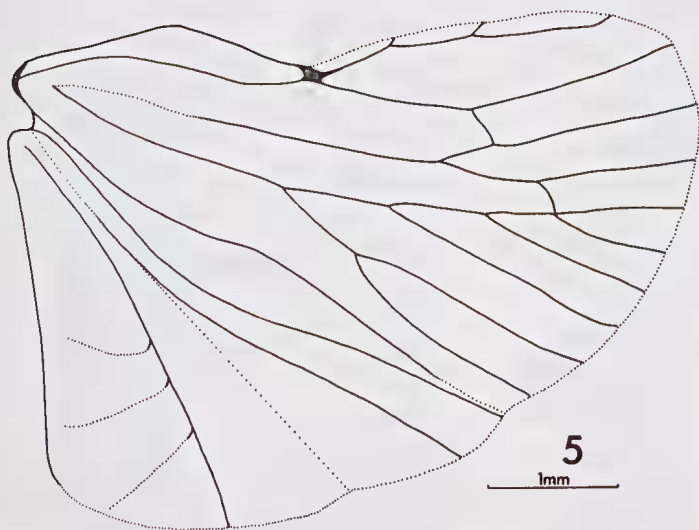
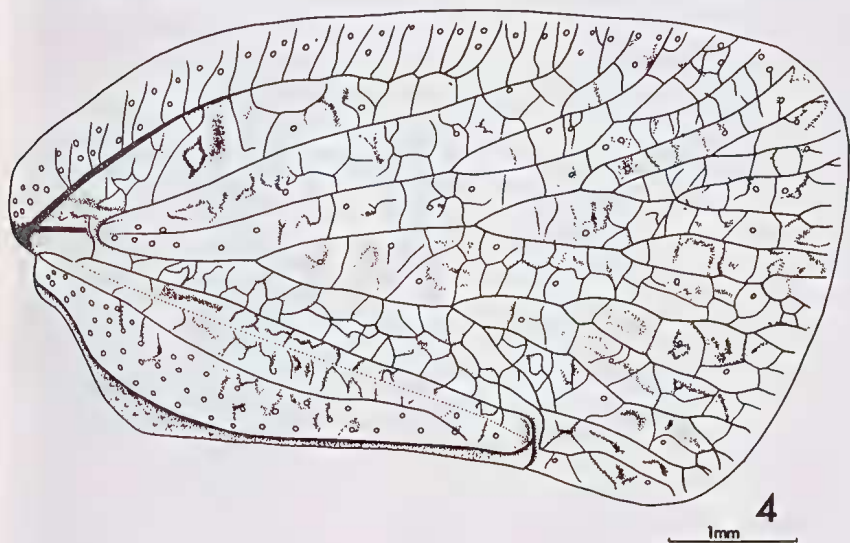
Description: See Kirkaldy (1906: 456) and Figs 1-8. Table 1 lists measurements of females and Table 2 of males.

Male genitalia: Pygofer with broad rounded lateral lobe from posterior margin. Anal segment short, not reaching as far posteriorly as subgenital plates, emarginate distally and produced ventrally short distance at base. Subgenital plates broad, convex, rounded posteriorly and ventrally, truncate posterodorsally with short broad point at dorsal corner. Aedeagus very broad with four sets of appendages; one near base on dorsal side, short, curved anteriorly and pointed, second set at apex of dorsal edge, also curved anteriorly and sharply pointed, third set midway between these curving dorsally and fourth set large,



Figs 1-3. *E. cinerascens*, head and pronotum. (1) frontal view; (2) lateral view; (3) dorsal view. Specimen illustrated: ♂ from Bundaberg, Qld.

from lateral part of conjunctiva near apex, curving ventrally and apically recurved towards posteriorly end and clubbed. In addition, a short clubbed projection extends posteriorly from near base of this fourth set of appendages. The lengths and proportions of these various sets of appendages varies slightly with locality but the basic arrangement remains the same.



Figs 4-5. *E. cinerascens*. (4) tegmen; (5) hind wing. Specimen illustrated: ♂ from Virginia, near Brisbane, Qld.

***Euryphantia tristis* (Kirkaldy) 1907, new combination**

Thanatochlamys tristis Kirkaldy (1907). *Bull. Haw. Sug. Pl. Ass. Div. Ent.* 3: 1-186.

Type: Holotype ♂ (seen), Cairns, Queensland, July 1904. *Type location*: Bernice P. Bishop Museum, Honolulu.

Known distribution: NORTH QUEENSLAND: Rocky River; Kuranda-Mareeba road; Gordonvale; Meringa.

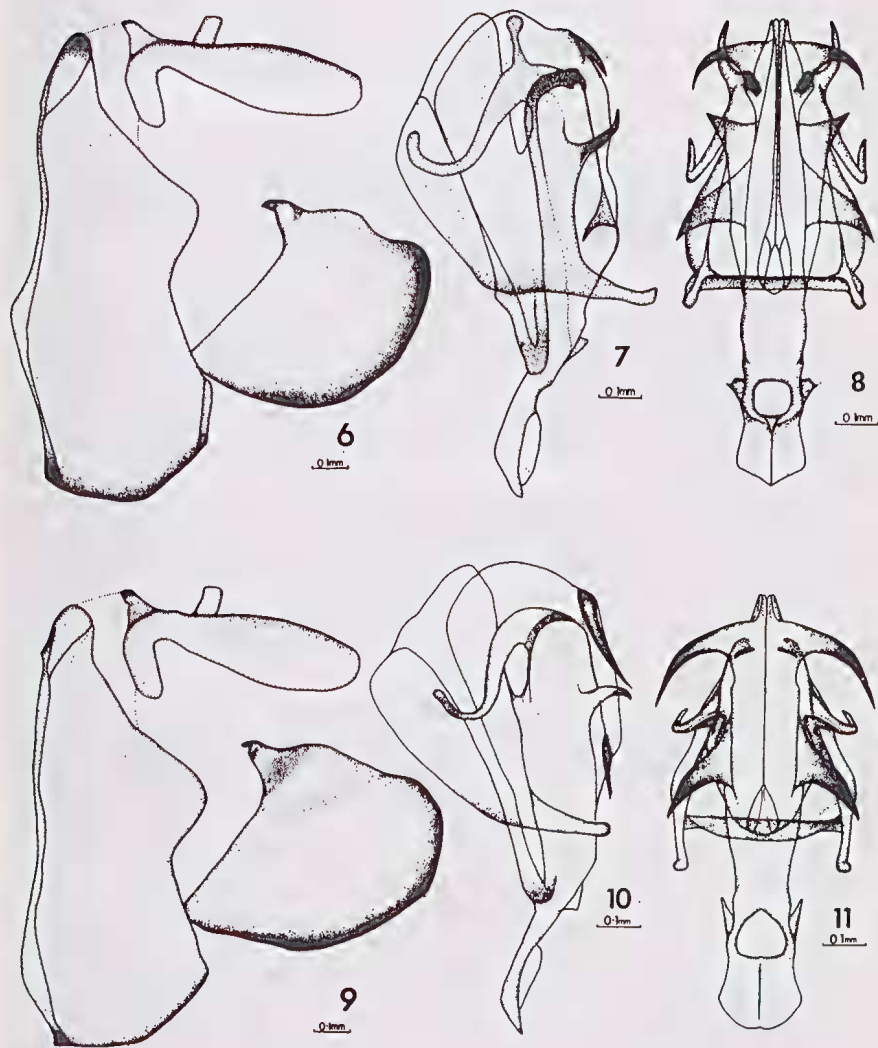
Description: See Kirkaldy (1907: 101) and Figs 9-11. The morphology of the head is not sufficiently different to that of *E. cinerascens* to warrant illustration. Table 1 lists measurements of females and Table 2 of males.

TABLE 1
Measurements (range and mean) of adult females of *E. cinerascens* and *E. tristis*

	<i>E. cinerascens</i> Northern Territory (n = 8)	<i>E. cinerascens</i> Queensland (n = 12)	<i>E. cinerascens</i> All areas (n = 20)	<i>E. tristis</i> All areas (n = 3)
tegmen length	7.27-8.15 (7.65)	7.27-8.08 (7.75)	7.27-8.15 (7.71)	7.58-7.73 (7.66)
clávus length	4.65-5.15 (4.89)	4.75-5.25 (5.03)	4.65-5.25 (4.97)	4.85-5.05 (4.95)
costal cell length	4.09-4.80 (4.47)	4.14-4.80 (4.47)	4.09-4.80 (4.47)	4.24-4.65 (4.48)
costal area width	0.44-0.53 (0.48)	0.48-0.61 (0.55)	0.44-0.61 (0.53)	0.48-0.53 (0.51)
costal cell width	0.53-0.62 (0.59)	0.53-0.65 (0.60)	0.53-0.65 (0.59)	0.57-0.63 (0.59)
vertex length	0.28-0.32 (0.30)	0.32-0.44 (0.37)	0.28-0.44 (0.34)	0.32-0.36 (0.33)
vertex width	0.89-0.97 (0.92)	0.89-0.97 (0.93)	0.89-0.97 (0.93)	0.87-0.93 (0.90)
pronotum length	0.50-0.53 (0.52)	0.44-0.61 (0.53)	0.44-0.61 (0.53)	0.44-0.53 (0.49)
mesonotum length	1.62-1.78 (1.69)	1.58-1.78 (1.69)	1.58-1.78 (1.69)	1.64-1.70 (1.66)
mesonotum width	1.41-1.58 (1.52)	1.41-1.70 (1.59)	1.41-1.70 (1.56)	1.45-1.62 (1.52)
frons length	1.25-1.37 (1.31)	1.29-1.50 (1.41)	1.25-1.50 (1.37)	1.37-1.39 (1.38)
frons width	1.00-1.10 (1.05)	1.01-1.16 (1.06)	1.00-1.16 (1.06)	1.01-1.13 (1.08)
fore tibia length	1.17-1.29 (1.22)	1.13-1.33 (1.27)	1.13-1.33 (1.25)	1.21-1.29 (1.25)
mid tibia length	1.21-1.37 (1.29)	1.21-1.41 (1.30)	1.21-1.41 (1.30)	1.21-1.29 (1.25)
hind tibia length	1.66-2.02 (1.84)	1.78-2.22 (1.93)	1.66-2.22 (1.90)	1.90-1.94 (1.91)

TABLE 2
Measurements (range and mean) of adult males
of *E. cinerascens* and *E. tristis*

	<i>E. cinerascens</i> (n = 20)	<i>E. tristis</i> (n = 5)
tegmen length	6.26-7.27 (6.74)	5.96-6.57 (6.35)
clavus length	4.14-4.80 (4.42)	3.84-4.55 (4.21)
costal cell length	4.24-5.00 (4.53)	4.04-4.65 (4.32)
costal area width	0.40-0.61 (0.50)	0.38-0.53 (0.44)
costal cell width	0.46-0.59 (0.54)	0.51-0.61 (0.54)
vertex length	0.16-0.32 (0.25)	0.24-0.32 (0.30)
vertex width	0.71-0.89 (0.80)	0.79-0.85 (0.82)
pronotum length	0.40-0.55 (0.48)	0.40-0.46 (0.44)
mesonotum length	1.33-1.68 (1.51)	1.41-1.58 (1.48)
mesonotum width	1.29-1.56 (1.44)	1.21-1.33 (1.28)
frons length	1.21-1.37 (1.29)	1.21-1.29 (1.26)
frons width	0.91-1.05 (0.98)	0.91-1.01 (0.96)
fore tibia length	1.09-1.29 (1.20)	1.03-1.21 (1.14)
mid tibia length	1.17-1.33 (1.24)	1.09-1.29 (1.21)
hind tibia length	1.62-1.90 (1.74)	1.58-1.86 (1.66)



Figs 6-11. ♂ genitalia. (6-8) *E. cinerascens*, ♂ from Bundaberg, Qld.: (6) lateral external view; (7) aedeagus, lateral view; (8) aedeagus, antero-dorsal view. (9-11) *E. tristis*, ♂ from junction of Goldmine and Davies Cks, Kuranda-Mareeba rd, N. Qld.: (9) lateral external view; (10) aedeagus, lateral view; (11) aedeagus, antero-dorsal view.

Male genitalia: Pygofer, anal segment and subgenital plates similar to those of *E. cinerascens*. Aedeagus similar to that of *E. cinerascens* except for the following points. Second pair of processes, from apex of dorsal edge, long, reaching to level of third pair which curve antero-dorsally rather than dorsally. First pair slightly sinuate towards apex. Fourth pair lacking clubbed posterior projection from near base.

Discussion

The differences between the various lists in Table 1 imply that the sizes of the individuals making up the various populations are environmentally rather than genetically controlled. This is indicated by the fact that the two forms of *E. cinerascens* from Northern Territory and Queensland differ as much from each other in size as they do from *E. tristis*.

As is the case with many other fulgoroid groups (see Kramer 1976, 1977, Evans 1966) the two species of *Euryphantia* are reliably differentiated only by reference to the male genitalia. Since the two species have allopatric distributions it is also possible to ally specimens with one or other of the species if the collection data are known. Females can only be identified by reference to their collection locality.

Kirkaldy obviously considered the possibility of the synonymy since one specimen from Gordonvale, North Queensland (*E. tristis* according to this locality) in the Bishop Museum collection is labelled, in Kirkaldy's handwriting, "*Euryphantia cinerascens* Kirk. = *Thanatochlamys tristis* Kirk." (J. T. Medler, pers. comm.). Due to the choice of material Kirkaldy used for the original description the two species are valid despite the generic synonymy.

Acknowledgements

I thank Dr G. M. Nishida, Bernice P. Bishop Museum, Honolulu, for the loans of the types of the two species and Dr J. T. Medler of the same Museum for pointing out Kirkaldy's apparent realization of the synonymy. I also thank Dr D. K. McAlpine (Australian Museum, Sydney), Mr T. G. Weir (A.N.I.C., Canberra), Dr T. E. Woodward (University of Queensland) and Dr G. B. Monteith (Queensland Museum) for the loan of specimens used in this study.

References

- Evans, J. W., 1966. The leafhoppers and froghoppers of Australia and New Zealand (Homoptera: Cicadelloidea and Cercopoidea). *Mem. Aust. Mus.* 12: 1-347.
- Kirkaldy, G. W., 1906. Leafhoppers and their natural enemies. Part IX, leafhoppers, Hemiptera. *Bull. Haw. Sug. Pl. Ass. Div. Ent.* 1(9): 271-479.
- Kirkaldy, G. W., 1907. Leafhoppers - Supplement (Hemiptera). *Bull. Haw. Sug. Pl. Ass. Div. Ent.* 3: 1-186.
- Kramer, J. P., 1976. Revision of the Neotropical planthoppers of the genus *Bladina* (Homoptera, Fulgoroidea, Nogodinidae). *Trans. Amer. ent. Soc.* 102: 1-40.
- Kramer, J. P., 1977. Taxonomic study of the planthopper genus *Oecleus* in the United States (Homoptera, Fulgoroidea, Cixiidae). *Trans. Amer. ent. Soc.* 103: 379-449.